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THE WEBB LAW FIRM, P.C. 700 KOPPERS BUILDING 436 SEVENTH AVENUE PITTSBURGH, PA 15219			EXAMINER FERNANDEZ, SUSAN EMILY	
			ART UNIT 1651	PAPER NUMBER

DATE MAILED: 11/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/626,316

Applicant(s)

SALINAS ET AL.

Examiner

Susan E. Fernandez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 21-29,33-35,39 and 40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-29,33-35,39 and 40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

The amendment filed September 11, 2006, has been received and entered.

Claims 1-20, 30-32, and 36-38 are canceled. Claims 21-29, 33-35, 39, and 40 are pending and examined on the merits.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 23 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Since the microorganisms "Tr 115" and "Tr 116" are recited in claim 23, it is essential to the invention recited in that claim. It must therefore be obtainable by a repeatable method set forth in the specification or otherwise be readily available to the public. If the microorganism is not so obtainable or available, the requirements of 35 U.S.C. § 112 may be satisfied by a deposit of the microorganism. The specification does not disclose a repeatable process to obtain the microorganism and it is not apparent if the microorganism is readily available to the public.

If a deposit is made under the terms of the Budapest Treaty, then an affidavit or declaration by applicants, or a statement by an attorney of record over his or her signature and registration number, stating that the specific strain will be irrevocably and without restriction or

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condition released to the public upon the issuance of a patent, would satisfy the deposit requirement made herein.

If the deposit has not been made under the Budapest Treaty, then in order to certify that the deposit meets the criteria set forth in 37 C.F.R. §§ 1.801-1.809, applicants may provide assurance of compliance by an affidavit or declaration, or by a statement by an attorney of record over his or her signature and registration number, showing that:

(a) during the pendency of this application, access to the invention will be afforded to the Commissioner upon request;

(b) all restrictions upon availability to the public will be irrevocably removed upon granting of the patent;

(c) the deposit will be maintained in a public depository for a period of 30 years or 5 years after the last request or for the effective life of the patent, whichever is longer; and

(d) the deposit will be replaced if it should ever become inviable.

Applicant is directed to 37 CFR § 1.807(b), which states:

(b) A viability statement for each deposit of a biological material defined in paragraph (a) of this section not made under the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure must be filed in the application and must contain:

- (1) The name and address of the depository;
- (2) The name and address of the depositor;
- (3) The date of deposit;
- (4) The identity of the deposit and the accession number given by the depository;
- (5) The date of the viability test;
- (6) The procedures used to obtain a sample if the test is not done by the depository; and
- (7) A statement that the deposit is capable of reproduction.

Applicant is also directed to 37 CFR § 1.809(d) which states:

(d) For each deposit made pursuant to these regulations, the specification shall contain:

- (1) The accession number for the deposit;
- (2) The date of the deposit;
- (3) A description of the deposited biological material sufficient to specifically identify it and to permit examination; and
- (4) The name and address of the depository.

It is noted that claim 23 also recites specific organism "T 22" (or referred to as KRL-AG 2 or Rifai). While this raises an issue with respect to enablement under 35 U.S.C. § 112, first paragraph, it appears that the microorganisms are publicly available without restriction. See [http://www.epa.gov/oppbppd1/biopesticides/ingredients/factsheets/factsheet\\_119202.htm](http://www.epa.gov/oppbppd1/biopesticides/ingredients/factsheets/factsheet_119202.htm). The microorganisms are therefore considered to be publicly available, unless applicant indicates otherwise. Should applicant become aware of any information to the contrary during the prosecution of this case, applicant must disclose such information to the office.

Applicant's arguments filed September 11, 2006, have been fully considered but they are not persuasive. Applicant asserts that a deposit under the terms of the Budapest Treaty is not applicable with respect to the microorganisms "Tr 115" and "Tr 116" because these microorganisms are native *Trichoderma* species that have not undergone any genetic modifications and were gathered and classified in Chile according to conventional taxonomy criteria, and are thus readily available to the public. However, MPEP 2404.01 notes that "if the biological material and its natural location can be adequately described so that one skilled in the art could obtain it using ordinary skill in the art, the disclosure would appear to be sufficient to meet the enablement requirement of 35 U.S.C. 112 without a deposit so long as its degree of availability is reasonable under the circumstances." The applicant has not provided sufficient description of the microorganisms "Tr 115" and "Tr 116," nor specifics of their natural locations in either the disclosure or the response filed September 11, 2006, to demonstrate that the artisan of ordinary skill in the art would have been able to obtain these microorganisms. Further still, MPEP 2404.01 indicates that "there are many factors that may be used as indicia that a

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biological material is known and readily available to the public” wherein “relevant factors include commercial availability, references to the biological material in printed publications, declarations of accessibility by those working in the field, evidence of predictable isolation technique, or an existing deposit made in accordance with these rules.” It is important to note that “each factor alone may or may not be sufficient to demonstrate that the biological material is known and readily available.” Applicant has not presented any of the above factors in the disclosure of the response filed September 11, 2006, thus the response lacks firm support. The rejection of record must therefore be maintained.

Claims 21-24, 27-29, and 33-35 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Specifically, the claims generically recite compositions comprising fungi selected from any and all *Trichoderma* species, or methods of using or making said compositions. However, the specification does not contain an adequate description for the entire scope of this limitation.

MPEP § 2163 provides that:

The written description for a claimed genus may be satisfied through sufficient description of a representative number of species by actual reduction to practice ..., reduction to drawings ..., or by disclosure of relevant identifying characteristics, i.e., structure or other physical and/or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and

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structure, or by a combination of such identifying characteristics, sufficient to show the applicant was in possession of the claimed genus .... (Citation omitted.)

In the instant case, the recitation of any *Trichoderma* species generically encompasses any and all *Trichoderma* species. However, the only *Trichoderma* species described in the disclosure are *T. harzianum*, *T. viridae*, *T. polysporum*, *T. longibratum*, *T. koningii*, *T. harziano* and species identified as T 22 (KRL-AG 2 or Rifai), Tr 115, and Tr 116. A holding of lack of written description over the recitation of any and all *Trichoderma* species is clearly required.

Applicant's arguments filed September 11, 2006, have been fully considered but they are not persuasive. Applicant asserts that it is the combination of two or more *Trichoderma* species and their synergistic action against phytopathogens, and not the specific type(s) of *Trichoderma* species, which provide the inventive feature of the claimed invention. However, it is respectfully noted that the claims do not mention that the species action is synergistic. Moreover, if the combination of the species and their synergistic action against phytopathogens is indeed the inventive feature of the claimed invention, the disclosure should provide a description of determining any and all combinations which result in a synergistic effect against phytopathogens. The scope of the claims are open to any and all *Trichoderma* species, but it is not clear that the applicant has described all combinations of *Trichoderma* species which have a bactericidal, bacteriostatic, and fungicidal effects. Thus, the rejection of record must be maintained.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 22, 23, 26, 29, 33, and 34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 22 is confusing since it is unclear what is referred to by the recitation “fractionated or in different proportions.” That is, it is unclear what is “fractionated” or what are in “different proportions.” Applicant's arguments have been fully considered but they are not persuasive. Applicant asserts that they refer to the different proportions that the *Trichoderma* species may be found in nature. However, it is respectfully noted that from the location of the recitation in the claim, it is unclear whether the “different proportions” refer to the proportions of the *Trichoderma* species, or the mycelium spores, or the original stumps. Moreover, line 2 of the claim indicates that the *Trichoderma* species are “natural or genetically modified,” thus, it is unclear how one could infer that “different proportions” refers to the proportions found in nature. Finally, “fractionated” is still confusing since it is unclear what it defines or how it relates to its alternative (“different proportions”).

Claim 23 is indefinite since it is unclear what would be considered “variations” of the species recited. The “variations” of the recited species could even be considered any other *Trichoderma* species. Additionally, the recitation “...the two or more *Trichoderma* species **may** be identified by strain names **such as...**” (emphasis added) renders the claim indefinite since “may be” and “such as” are exemplary claim language which lead to confusion over the intended scope of the claim. The metes and bounds of the claim are unclear since it is not clear whether the two or more *Trichoderma* species need to be identified by the strain names listed in the claim. Thus, prior art which teaches a composition comprising two or more *Trichoderma* species



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selected from among the species listed in claim 23, and variations of these (any *Trichoderma* species), obtained in laboratory can anticipate this claim even if the prior art does not teach any of the listed strains. Applicant's arguments have been fully considered but they are not persuasive. It is respectfully noted that though one of ordinary skill in the art would understand that "variations" of the species mean variations of the *Trichoderma* species as a result of genetic handling, what is unclear is to what extent of genetic modification is required in order for a genetically modified *Trichoderma* species to still be considered a "variation" of the *Trichoderma* species. The variation can be considered significant enough that variations of the listed *Trichoderma* species encompasses all other *Trichoderma* species.

Claim 26 is indefinite since it is unclear that the proportions refer to the proportion of the three listed species in order. For clarity, it is suggested that the last line of the claim recite "10:20:70 or 99:05:05, respectively."

Claim 29 is confusing since it is unclear what is defined by a "cicatrizing paint." Additionally, the recitation "may have color added" renders the claim indefinite since it is unclear whether added color is a required limitation of the claim. The metes and bounds of the claim are unclear. In the response filed September 11, 2006, applicant seems to infer that the composition of claim 29 is a latex paint. However, it is respectfully noted that the language of claim 29 does not clearly express that the composition is a paint.

Claim 33 is indefinite since the definitions of "the volley technique" and "back machines" are not clear, nor have been clarified in the response filed September 11, 2006. Also, the claim is confusing since it is unclear how the composition is applied in seed impregnation if the composition is "incorporated to ferti-irrigation tanks". The recitation "incorporated to ferti-

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irrigation tanks” seems to indicate that the composition is applied to the tanks, and if incorporated to the tanks, it is unclear how the composition can then be released for seed impregnation. Thus, claims 33 and 34 are rejected under 35 U.S.C. 112, second paragraph.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 21-23 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by McCabe et al. (US 4,828,600).

McCabe et al. discloses a fungal inoculant that may comprise a mixture of *Trichoderma hamatum* and *Trichoderma harzianum* (column 2, lines 38-42) and that the strains included in this mixture were “isolated natively from the field” (column 2, lines 43-44). See also column 5, lines 46-50. Thus, claims 21 and 22 under examination are anticipated by McCabe et al. Note further that *T. hamatum* can be considered a “variation” of other *Trichoderma* species such as *T. viridae*, *T. polysporum*, *T. longibratum*, and *T. koningii*, since *T. hamatum* is a species of the same genus as the fungi listed above. Therefore, McCabe et al. anticipates instant claim 23.

The McCabe fungal inoculant is a fungicidal composition (column 3, lines 6-14) and may include a carrier (column 3, lines 34-35). Furthermore, the inoculant may be inserted into the furrows into which corn is planted (thus applied to soil) or coated directly on corn seeds. See column 3, lines 34-39. Thus, instant claim 35 (since corn seeds are food) is taught by the reference.

Applicant's arguments filed September 11, 2006, have been fully considered but they are not persuasive. Applicant asserts that the fungal inoculants of *T. hamatum* and *T. harzianum* in the McCabe invention are in the form of chlamydospores, and thus are not alive. However, it is respectfully noted that McCabe et al. discloses that the propagules of the fungal inoculant are viable (column 3, line 22). Moreover, Rastogi et al. (A Complete Course in ISC Biology, Vol. I for Class XI, 2006, Pitambar Publishing Company (P) Ltd., New Delhi, India, page 94) teaches that chlamydospores can be viable (page 94, last paragraph). Thus, McCabe et al. indeed teaches a mixture of two live *Trichoderma* species, and there is no suggestion that they kill off each other. A holding of anticipation is therefore required.

Claims 21-23 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Paau et al. (US 5,194,258) in light of Hermosa et al. (Applied and Environmental Microbiology, 2000, 66(5): 1890-1898) and the ATCC catalog.

Paau et al. discloses a method of protecting crop plants from fungal plant disease wherein a culture of biocontrol fungus comprising a mixture thereof of *Trichoderma* and *Gliocladium virens* is used. See abstract and claim 1 (particularly part (a)). *Gliocladium virens* is also known as *Trichoderma virens* (Hermosa et al., page 1890, first column, last paragraph). Moreover, in

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the discussion of *Trichoderma* strains used as biocontrol fungus (column 6, lines 64-66), the strains specified are under the ATCC numbers 24274 and 32247, and are strains of *Trichoderma harzianum* ("ATCC Number: 24274" and "ATCC Number: 32247",

<http://www.atcc.org/common/catalog/numSearch/numResults.cfm>, accessed February 22, 2006).

Thus, Paau et al. teaches a mixture of at least two different *Trichoderma* species and in turn anticipates instant claims 21, 22, 35, and 36. Note further that *T. virens* can be considered a "variation" of other *Trichoderma* species such as *T. viridae*, *T. polysporum*, *T. longibratum*, and *T. koningii*, since *T. virens* is a species of the same genus as the fungi listed above. Therefore, Paau et al. anticipates instant claim 23.

Since the biocontrol fungus can be applied to seeds which are considered food, Paau et al. also anticipates instant claim 35.

Applicant's arguments have been fully considered but they are not persuasive. Applicant asserts that Paau et al. does not teach a mixture of two or more live, active *Trichoderma* species. However, it is respectfully noted that the applicant has not provided any evidence to suggest that the culture of *Trichoderma* and *Gliocladium virens* is not viable, or that the species kill each other. Further still, though the Paau invention includes deactivated pathogen, the transitional phrase "comprising" is used in the instant claims, and therefore additional elements are not excluded in the claimed mixture of *Trichoderma* species. Thus, a holding of anticipation is required.

Claims 21-23, and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Richard (US 4,678,669).

Richard discloses a method for controlling soil-borne pathogens in plants wherein plants are treating with a mixture comprising a viable culture of *Trichoderma*, such as *Trichoderma viride* and *Trichoderma polysporum* (claims 1 and 2). Note that any plant can be considered food. Thus, instant claims 21-23, and 35 are anticipated by the reference.

Applicant's arguments have been fully considered but they are not persuasive. Applicant asserts that grain is inoculated with only one of *Trichoderma* species. However, it is respectfully noted that claim 2 of Richard indicates that the mixture containing a "viable culture of *Trichoderma*" (claim 1) comprises *Trichoderma* selected from the group consisting of *Trichoderma viride*, *Trichoderma polysporum* and "mixtures thereof." Clearly, "mixtures thereof" comprises more than one *Trichoderma* species. Contrary to applicant's assertions, Richard teaches a mixture of two or more live *Trichoderma* species which are able to exist together without killing off each other. A holding of anticipation therefore must be maintained.

Claims 21-24, and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Reinbergen (WO 97/31879).

Reinbergen discloses a liquid composition comprising a microbial spore or culture preparation and a solution having a colloidal nature (claim 8) wherein the microbial spore or culture preparation is selected from a group consisting of spores of cultures from *Trichoderma* and mixtures thereof (claim 10). Thus, multiple *Trichoderma* species may be included in the composition, thus anticipating claims 21 and 22 under examination. Furthermore, the *Trichoderma* species is selected from a group consisting of *T. harzianum*, *T. polysporum*, *T. konigii*, *T. viride*, and mixtures thereof (claim 12). Note that *T. viride* is considered an

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alternative spelling of *T. viridae*. Thus, Reinbergen clearly anticipates instant claims 23 and 24. Furthermore, the Reinbergen invention can be used for food products (page 5, lines 21-23), thus teaching the limitations of instant claim 35.

Applicant's arguments have been fully considered but they are not persuasive. Spores are not necessarily non-viable (see Rastogi et al., page 94), and therefore, Reinbergen indeed teaches a mixture of two or more live *Trichoderma* species which exist together without killing each other. A holding of anticipation is clearly required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 21-23, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCabe et al. in view of Harman (Plant Disease, 2000, 84(4): 377-393).

As discussed above, McCabe et al. anticipates claims 21-23, and 35. However, McCabe et al. does not expressly disclose that the biological inoculant comprises *Trichoderma* species wherein the species are identified as T 22 (KRL-AG 2 or Rifai), Tr 115, or Tr 116.

Harman discloses the *T. harzianum* strain T-22 organism, which is also known as KRL-AG2 (page 377, second column, second paragraph). This biocontrol agent controls the growth of fungi, thereby serving as a suitable substitute for other fungicides and as an agent for plant growth (page 385, first column and Figures 9 and 10).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have substituted the *T. harzianum* strain used in the McCabe invention with the *T. harzianum* strain disclosed by Harman. One of ordinary skill in the art would have been motivated to do this since *T. harzianum* strain T-22 is effective against fungi and improves plant growth, thus sharing properties with the *T. harzianum* strain of the McCabe invention. Moreover, the strains are members of the same species, thus sharing other properties. One of ordinary skill would have reasonably expected that the substitution would have been suitable as a component in a biological inoculant for improving plant growth. A holding of obviousness is clearly required.

Claims 21-23 and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paau et al., Hermosa et al., and the ATCC catalog in view of Harman.

As discussed above, Paau et al. in light of Hermosa et al. and the ATCC catalog anticipates claims 21-23, and 35. However, the references do not expressly disclose that *Trichoderma* species present in the Paau composition are identified as T 22 (KRL-AG 2 or Rifai), Tr 115, or Tr 116.

Harman discloses the *T. harzianum* strain T-22 organism, which is also known as KRL-AG2 (page 377, second column, second paragraph). This biocontrol agent controls the growth of fungi, thereby serving as a suitable substitute for other fungicide and as an agent for plant growth (page 385, first column and Figures 9 and 10).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have substituted the *T. harziaum* strain used in the Paau invention with the *T. harziaum* strain disclosed by Harman. One of ordinary skill in the art would have been motivated to do this since *T. harzianum* strain T-22 is effective against fungi and serves as a biocontrol agent, thus sharing properties with the *T. harzianum* strain of the Paau invention. Moreover, the strains are members of the same species, thus sharing other properties. One of ordinary skill would have reasonably expected that the substitution would have been suitable as a component in a composition for protecting crop plants from fungal damage.

Paau et al. also differs from the claims in that Paau et al. does not expressly disclose the use of the “volley technique” or specific types of equipment used in applying the biocontrol composition to plants/seeds/soil. Further still, Paau et al. does not teach the applied dose recited in claim 34 under examination.

At the time the invention was made, it would have been obvious to have applied the Paau composition to plants and seeds using various techniques, including the “volley technique.” One



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of ordinary skill in the art would have been motivated to do this since Paau et al. indicates that the composition can be sprayed on the plant seed, soil, or plant (column 5, lines 8-10), and it is clear that spraying can be performed with various types of machines. Thus, instant claim 33 is rendered obvious. Moreover, the selection of suitable doses of the biocontrol composition would have a matter of routine experimentation on the part of the artisan of ordinary skill in the art. Thus, instant claim 34 is rendered obvious.

A holding of obviousness is clearly required.

Claims 21-23, 29, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCabe et al. or Paau et al. (Hermosa et al. & ATCC catalog) or Richard in view of Howell et al. (Journal of Cotton Science, 1997, 1: 15-20).

As discussed above, McCabe et al., Paau et al. (Hermosa et al. & ATCC catalog), and Richard each anticipate claims 21-23, and 35. However, these references do not expressly disclose that the compositions of these references include a latex base.

Howell et al. discloses the treatment of seeds with a coating of latex sticker and a *Trichoderma virens* preparation (page 17, first column, first paragraph), along with metalaxyl. Thus, the treatment layers on the seeds are considered a composition comprising *T. virens* and a latex base. It was found that such a treatment was effective in acting as a fungicide (abstract).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have included latex in the compositions disclosed by McCabe et al., Paau et al. (Hermosa et al. & ATCC catalog), and Richard. One of ordinary skill in the art would have been motivated to do this since one of ordinary skill in the art would have recognized the suitability of

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including latex in a seed coating. Moreover, latex included in the McCabe, Paa, and Richard compositions would not have inhibited the antifungal activity of the *Trichoderma* species present in said compositions. A holding of obviousness is clearly required.

Claims 21-24 and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reinbergen in view of Harman.

As discussed above, Reinbergen anticipates claims 21-24, and 35. However, Reinbergen does not expressly disclose that the *Trichoderma* species are identified as T 22 (KRL-AG 2 or Rifai), Tr 115, or Tr 116.

Harman discloses the *T. harzianum* strain T-22 organism, which is also known as KRL-AG2 (page 377, second column, second paragraph). This biocontrol agent controls the growth of fungi, thereby serving as a suitable substitute for other fungicide and as an agent for plant growth (page 385, first column and Figures 9 and 10).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have used the *T. harzianum* strain T-22 disclosed by Harman in the Reinbergen composition. One of ordinary skill in the art would have been motivated to do this since *T. harzianum* strain T-22 is effective against fungi and serves as a biocontrol agent, which are properties of the Reinbergen compositions. Moreover, the person of ordinary skill in the art would have recognized the suitability of using any strain of the *T. harzianum* species in the Reinbergen composition.

Reinbergen also differs from the claims in that Reinbergen does not expressly disclose the use of the "volley technique" or specific types of equipment used in applying the biocontrol

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composition to plants/seeds/soil. Further still, Reinbergen does not teach the applied dose recited in claim 34 under examination.

At the time the invention was made, it would have been obvious to have applied the Reinbergen composition to plants and seeds using various techniques, including the “volley technique.” One of ordinary skill in the art would have been motivated to do this since Reinbergen indicates that the composition (marketed as Companion<sup>TM</sup> and Companion 2<sup>TM</sup>) can be sprayed on plots (page 14, lines 7-9 and lines 19-20), and it is clear that spraying can be performed with various types of machines. Thus, instant claim 33 is rendered obvious. Moreover, the selection of suitable doses of the Reinbergen composition would have been a matter of routine experimentation on the part of the artisan of ordinary skill in the art. Thus, instant claim 34 is rendered obvious.

A holding of obviousness is clearly required.

Claims 21-26, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reinbergen in view of Gromovkyh et al. (Proceedings of 1999 Annual International Research Conference on Methyl Bromide Alternatives and Emissions Reductions, <http://www.epa.gov/ozone/mbr/airc/1999/>, last updated June 6, 2002).

As discussed above, Reinbergen anticipates claims 21-24, and 35. However, Reinbergen does not expressly disclose that the *Trichoderma longibrachiatum* is included in the mixture of *Trichoderma* species included in the Reinbergen liquid composition, wherein the Reinbergen liquid composition already teaches a mixture comprising *T. viridae*, and *T. harzianum*.

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Gromovykh et al. discloses that five of the most promising isolates against certain pathogenic fungi were identified. These five strains corresponded to the species *T. viride* (*T. viridae*), *T. harzianum*, and *T. longibrachiatum*, among others. See first page, "Materials and methods." All of these tested strains demonstrated antagonistic activity against a particular pathogenic fungus species (second page, "Results and discussion").

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have included *T. longibrachiatum* as one of the *Trichoderma* species in the mixture included in the Reinbergen liquid composition. One of ordinary skill in the art would have been motivated to do this because of the antifungal properties exhibited by *T. longibrachiatum*, wherein said antifungal properties are the properties desired for the Reinbergen liquid composition. Additionally, the selection of particular proportions of the different *Trichoderma* species present in the Reinbergen composition would have been a routine experimentation on the part of the artisan of ordinary skill in the art. Therefore, claims 25 and 26 are rendered obvious by the references. A holding of obviousness is clearly required.

Claims 21-28, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reinbergen and Gromovykh et al. as applied to claims 21-26, and 35 above, and further in view of Panizzi et al.

As discussed above, Reinbergen and Gromovykh et al. render claims 21-26, and 35 obvious. However, these references do not expressly disclose that the *Trichoderma* composition further comprises a vegetal extract of bacteriostatic and/or bactericidal nature, or that this vegetal extract is a *Rubus sp.* hydro-alcoholic extract.

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Panizzi et al. discloses that a crude methanolic extract of *Rubus ulmifolius* possesses “high antimicrobial properties on bacteria and fungi” (page 165, first column, last paragraph).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have included an alcoholic extract of *R. ulmifolius* in the Reinbergen *Trichoderma* composition. One of ordinary skill in the art would have been motivated to do this since it would have further increased the antifungal activity of the *Trichoderma* composition, acting on bacteria or fungi which are not acted on by the *Trichoderma* species included in the composition. A holding of obviousness is clearly required.

Claims 21-24, 29, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reinbergen in view of Howell et al.

As discussed above, Reinbergen anticipates claims 21-24, and 35. However, Reinbergen does not expressly disclose that the *Trichoderma* composition includes a latex base.

Howell et al. discloses the treatment of seeds with a coating of latex sticker and a *Trichoderma virens* preparation (page 17, first column, first paragraph), along with metalaxyl. Thus, the treatment layers on the seeds are considered a composition comprising *T. virens* and a latex base. It was found that such a treatment was effective in acting as a fungicide (abstract).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have included latex in the *Trichoderma* composition disclosed by Reinbergen. One of ordinary skill in the art would have been motivated to do this since one of ordinary skill in the art would have recognized the suitability of including latex in a seed coating. Moreover, latex

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included in the composition would not have inhibited the antifungal activity of the *Trichoderma* species present in said composition. A holding of obviousness is clearly required.

Claims 21-26, 35, 39, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reinbergen and Gromovkyh et al as applied to claims 21-26, and 35 above, and further in view of Toet et al. and Yeoh et al.

As discussed above, Reinbergen and Gromovkyh et al render claims 21-26, and 35 obvious. However, Reinbergen does not expressly disclose steps for preparing the *Trichoderma* composition, wherein trays are sowed with *Trichoderma* species in the form of reproductive original units, and then harvested by mechanical means.

Toet et al. discloses a method for producing *Trichoderma harzianum* "...in a form suitable for adding directly to soil to protect plants from pathogenic fungi..." (claim 1). This method comprises inoculating (sowing) trays containing culture medium with *Trichoderma harzianum* spores. The culture is allowed to grow, and the incubated product is dried. See claim 1. Note that a full-scale plant can be constructed in order to perform this method (Example III at columns 3 and 4), wherein the trays containing the inoculated product can be emptied onto drying racks (column 4, lines 3-5). Thus, the resulting inoculated product is harvested by mechanical means.

Yeoh et al. discloses growing strains of *Trichoderma* fungi in a culture medium comprising cassava-root extract, which is a vegetal extract. See abstract.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have prepared the Reinbergen *Trichoderma* composition by the methods

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disclosed by Toet et al, wherein trays containing culture medium are inoculated with spores of all *Trichoderma* species included in the composition, and the biomass is harvested by mechanical means. Moreover, it would have been obvious to have included vegetal extracts in the culture medium. One of ordinary skill in the art would have been motivated to have used the methods disclosed by Toet et al. since these had been shown to be successful in obtaining one of the species included in the Reinbergen composition, *Trichoderma harzianum*, and the *Trichoderma* species is obtained in a form suitable for protecting plants from pathogenic fungi, a desired property. Furthermore, one of ordinary skill in the art would have been motivated to have used vegetal extracts, such as root extracts, in the culture medium since it would have permitted *Trichoderma* growth, and was recognized as being suitable for inclusion in *Trichoderma* culture medium by Yeoh et al. Moreover, since the culture medium used in Toet et al. comprises of spent grain, crushed maize cobs, and bran, one of ordinary skill in the art would have expected that the extracts of these products would have contained the nutrients needed for *Trichoderma* growth. Thus, claim 39 under examination is rendered obvious. Additionally, it would have been a matter of routine experimentation to have varied the quantities of each species present in the prepared composition, including the quantities recited in claim 40 under examination. A holding of obviousness is clearly required.

No claims are allowed.

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Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan E. Fernandez whose telephone number is (571) 272-3444. The examiner can normally be reached on Mon-Fri 8:30 am - 5:00 pm.

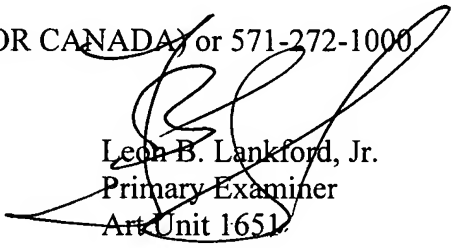
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Wityshyn can be reached on (571) 272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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